REMARKS

Claim Status

Claims 1-24 were originally presented for examination in this application. In a preliminary amendment filed on May 14, 2004, Applicants added new claims 25-31. A restriction requirement issued on April 25, 2007, and Applicants elected claims 1-21 and 25-31 in response thereto. An office action issued on August 24, 2007, in which:

- The specification was object to based on a omission of a description of FIG. 17. Applicants have amended the specification to address this objection.

- Claims 1, 2, 8, 9, 12, 13, 15, 16, 19, 25, 26 and 29 were rejected under 35 U.S.C. §103(a) as being obvious in light of U.S. Patent No. 6,359,647 to Sengupta et al. ("Sengupta") further in view of U.S. Patent No. 6,570,608 to Tserng ("Tserng").

- Claims 3 – 7 were rejected under 35 U.S.C. §103(a) as being obvious in light of Sengupta and Tserng and further in view of U.S. Patent No. 5,845,009 to Marks et al. ("Marks").

- Claims 10, 11, 17, 18, 20, 27, 28 and 30 were rejected under 35 U.S.C. §103(a) as being obvious in light of Sengupta and Tserng and further in view of U.S. Patent No. 6,371,805 to Brodsky et al. ("Brodsky").

- Claims 14, 21 and 31 were rejected under 35 U.S.C. §103(a) as being obvious in light of Sengupta and Tserng and further in view of U.S. Patent No. 6,441,846 to Carlbom et al. ("Carlbom").

In response, Applicants amended claims 1, 15, 17, 18, 19, 20 and 21. A final office action issued on April 14, 2008, maintaining the rejections under 35 U.S.C. §103(a).

Examiner Interview

      Applicants thank the Examiner for his time and courtesy extended during the telephonic interview on May 20, 2008, with the undersigned attorney. The following discussion is intended to constitute a proper recordation of these interviews in accordance with MPEP §713.04, and also to provide a full response to the Office Action.

Claim Rejections Under 35 U.S.C. §103(a)

      Independent claims 1, 15, 17, 18, 19, 20 and each recite using video frames generated "over time" to track objects as they traverse a monitored environment in a manner that is "independent of calibration among the image sensors and the monitored environment." In contrast, each of the cited references is expressly dependent upon calibration to effectuate camera handoffs and object tracking.

      Serengupta describes a video surveillance system that tracks objects through a monitored environment based on "a representation of each camera's location and potential field of view, relative to each other." Serengupta, col. 4, line 47. More specifically, "the camera locations are provided relative to the site plan of the secured area." Serengupta, col. 4, line 49. As discussed during telephonic interviews with the Examiner on October 17, 2007, and May 20, 2008, these passages clearly indicate that Serengupta's techniques rely heavily on calibration among the cameras and coordination with a site plan.

      In an attempt to stretch the boundaries of the Sernegupta system, the Examiner now cites passages describing the identification of objects *within a camera's field of view*. Specifically:

> "automated means can be employed to identify moving objects in an image that conform to a particular target profile, such as size, shape, speed, etc. Camera 105 is initially adjusted to capture the figure, and the figure tracking techniques continually monitor and report the location of the figure in the image produced from camera 105. The figure tracking system 144 associates the characteristics of the selected area, such as color combinations and patterns, to the identified figure, or target. Thereafter, the figure tracking system 144 determines the subsequent location of this same characteristic pattern, corresponding to the movement of the identified target as it moves about the camera's field of view." (Col. 4, lines 8-19).

This passage merely provides an alternative method to manual identification of objects within the field of view of a single camera. While being able to uniquely identify an object within a camera's field of view based on characteristics of the object is one step in being able to track the object, Serengupta's technique requires more than identifying the object in order to track it among multiple cameras. In fact, Serengupta's notes this specifically, stating "based on the determined location of the person *and the determined field of view of each camera*, the controller selects camera 106 when the person enters camera 106's potential field of view." (Col. 4 lines 35-39, emphasis added). Clearly the ability to select a particular camera is based on the knowledge of that camera's field of view, e.g., calibration with other cameras and/or its surroundings. It is the need for this knowledge that makes conventional surveillance systems so expensive to maintain, as any changes in the floorplans, additions or removal of cameras, or merely moving or adjusting a camera requires recalibration – a process that involves system downtime and specialized technical knowledge.

In contrast, the claims describe techniques and systems that are able to track objects as they pass through a monitored environment based on the location and movement of the object itself, without the need for calibration of the cameras. Instead of relying on mappings and coordinates, Applicants' system analyzes video frames <u>over time</u> to determine proper camera hand-offs and transitions, thus eliminating the need for floor plans, layouts or camera positioning calculations both at the time of implementation and when floorplans or camera positions change – a costly and time consuming drawback to the Serengupta system.

Tseng also relies on calibration between the monitored environment and the cameras. Specifically, "the system includes an image coordinate to world coordinate mapping." Tseng, col. 8, line 38. Tseng explains that "this mapping is based on quadrilaterals that map horizontal planes in an image to horizontal areas in a floor map." Tseng, col. 8, line 39. It is this very calibration that permits the Tseng system to determine an object's actual size from its apparent size in a video image. Like Serengupta, Tseng relies on a calibration of the cameras to a floor map in order to function.

Thus, because neither Serengupta nor Tseng teaches or suggests every element of independent claims 1, 15, 17, 18, 19, 20 and 21, Applicants respectfully submit that these references, alone or in combination, fail to anticipate these claims or render the claims as obvious. Accordingly, Applicants respectfully request reconsideration and withdrawal of the

rejection of claims 1, 15, 17, 18, 19, 20 and 21 under 35 U.S.C. §103(a), as well as those claims that depend directly or indirectly therefrom.

CONCLUSION

Applicants respectfully requests allowance of claims 1-21 and 25-31 in due course. The Examiner is invited to contact Applicants' undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

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